

**Notice of Allowability**

Application No.

09/963,710

Examiner

Vikram Bali

Applicant(s)

MAEDA ET AL.

Art Unit

2623

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 12/9/2004.
2. ☒ The allowed claim(s) is/are 3-15 (renumbered as 1-13).
3. ☒ The drawings filed on 9/27/2001 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☒ All    b) ☐ Some\*    c) ☐ None    of the:
    1. ☒ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  6. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying Indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08),  
Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit  
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),  
Paper No./Mail Date \_\_\_\_\_
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_.

## **DETAILED ACTION**

### **EXAMINER'S AMENDMENT**

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Darren R. Crew on 8/29/2005.

The application has been amended as follows:

In claims:

Claims 1-2 (Canceled).

Claim 3 (Original): An inspection apparatus of an electric junction box having a plurality of mounts on which electric parts are mounted, for inspecting mounting state of the electric parts, said each electric part having a different mark on an outer surface thereof depending upon an item symbol thereof, the inspection apparatus comprising:

image pickup means for picking up an image including said mark of the electric part mounted on the mount;

extraction means for (1) storing image consulting data containing a plurality of images including said marks of the electric parts of all the item symbols to be mounted in the electric junction box as a subject of the inspection and normal data indicating the proper item symbols of the electric parts mounted on the corresponding mounts, and for (2) comparing the image including said mark of the electric part mounted on the mount picked up by the image pickup means and the image in the image consulting data, and for (3) extracting the item symbol of the electric part having the most analogous image from the images in the image consulting data; and

judgment means for judging the quality of the mounting state of the electric parts on the mount by comparing the item symbol of the electric part having the most analogous image and said normal data.

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Claim 4 (Original): The inspection apparatus of an electric junction box according to claim 3, wherein the image is a digital information, in which an optical power is indicated with a plurality of grades thereof,

the extraction means compares the image including said mark of the electric part mounted on the mount in the electric junction box as a subject of the inspection and the image in the image consulting data by a method of normalization correlation so that the image having the highest correlation value obtained by the method of normalization correlation out of the images is set up to be said most analogous image, and

the judgment means judges the quality of the mounting state of the electric parts on the mount by comparing the item symbol of the electric part of the image having the highest correlation value and said normal data.

Claim 5 (Previously Presented): An inspection apparatus of an electric junction box having a plurality of mounts on which electric parts are mounted, for inspecting mounting state of the electric parts, said each electric part having a different mark on an outer surface thereof corresponding to an item symbol thereof, the inspection apparatus comprising:

image pickup means for picking up an image, including said mark, of an electric part mounted on a mount to be inspected;

extraction means for (1) storing image consulting data including a plurality of item symbols wherein each of the item symbols corresponds to at least one of a plurality of images of non-defective electric parts, and storing normal data including a plurality of mounts to be inspected wherein each of the mounts to be inspected corresponds to at least one proper one of the item symbols, and for (2) comparing the image, including said mark, of the electric part mounted on the mount to be inspected picked up by the image pickup means and the images of the non-defective electric parts in the image consulting data by a method of normalization correlation, and for (3) extracting the highest correlation value out of the correlation values obtained by the method of normalization correlation; and

judgment means for judging the quality of the mounting state of the electric parts on the mount in dependence upon the highest correlation value, the image consulting data, and the normal data.

Claim 6 (Original): The inspection apparatus of an electric junction box according to claim 4 or 5, wherein the judgment means adds the image including said mark of the electric part properly mounted on the mount, out of the electric parts judged improperly mounted on the mount, to the image consulting data.

Claim 7 (Previously Presented): An inspection apparatus of a terminal fittings for inspecting mounting state of the terminal fittings on an insulator, said terminal fittings being mounted at a mount to be inspected on the insulator and an electric wire being pressure-welded to the terminal fittings, the inspection apparatus comprising:

image pickup means for picking up an image of the terminal fittings mounted at the mount to be inspected on the insulator;

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extraction means for (1) storing image consulting data including a plurality of item symbols wherein each of the item symbols corresponds to at least one of a plurality of images of non-defective terminal fittings mounted on the insulator, and storing normal data including a plurality of mounts to be inspected wherein each of the mounts to be inspected corresponds to at least one proper one of the item symbols, and for (2) comparing the image of the terminal fittings picked up by the image pickup means and the plurality of the images of non-defective terminal fittings in the image consulting data, and for (3) extracting an image most analogous to the image of the terminal fittings picked up by the image pickup means from the images in the image consulting data; and

judgment means for judging the quality of the mounting state of the terminal fittings on the insulator in dependence upon the most analogous image, the image of the terminal fittings picked up by the image pickup means, the image consulting data, and the normal data.

Claim 8 (Previously Presented): The inspection apparatus of a terminal fittings according

to claim 7, wherein the image is a digital information, in which an optical power is indicated with a plurality of grades thereof,

the extraction means compares the image of the terminal fittings picked up by the image pickup means and a plurality of the images in the image consulting data by a method of normalization correlation so that the image having the highest correlation value obtained by the method of normalization correlation out of the images is set up to be said most analogous image,

the judgment means judges the quality of the mounting state of the terminal fittings mounted at the mount to be inspected on the insulator to be good when the correlation value is equal to or higher than a predetermined threshold and the item symbol corresponding to the image of the terminal fittings picked up by the image pickup means corresponds, according to the normal data, to the proper item symbol for the mount to be inspected, and

the judgement means judges the quality of the mounting state to be no good when the correlation value is lower than the predetermined threshold or when the item symbol corresponding to the image of the terminal fittings picked up by the image pickup means does not correspond, according to the normal data, to the proper item symbol for the mount to be inspected.

Claim 9 (Currently Amended): An inspection apparatus of a terminal fittings for inspecting pressure-welding state of an electric wire to the terminal fittings, said terminal fittings being mounted at a mount to be inspected on an insulator and the electric wire being pressure-welded to the terminal fittings, the inspection apparatus comprising:

image pickup means for picking up an image of the terminal fittings, to which the electric wire is pressure-welded, mounted at the mount to be inspected on the insulator;

~~second~~ extraction means for (1) storing ~~second~~ image consulting data including a plurality of item symbols wherein each of the item symbols corresponds to at least one

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of a plurality of images of non-defective terminal fittings, to which the electric wire is pressure-welded, mounted on the insulator, and storing normal data including a plurality of mounts to be inspected wherein each of the mounts to be inspected corresponds to at least one proper one of the item symbols, and for (2) comparing the image of the terminal fittings, to which the electric wire is pressure-welded, picked up by the image pickup means and the plurality of images of non-defective terminal fittings, to which the electric wire is pressure-welded, in the ~~second~~ image consulting data, and for (3) extracting an image most analogous to the image of the terminal fittings, to which the electric wire is pressure-welded, picked up by the image pickup means from the images in the ~~second~~ image consulting data; and

~~second~~ judgment means for judging the quality of the pressure-welding state of the electric wire to the terminal fittings, to which the electric wire is pressure-welded, mounted on the insulator in dependence upon the most analogous image, the image of the terminal fittings, to which the electric wire is pressure-welded, mounted on the insulator picked up by the image pickup means, the ~~second~~ image consulting data, and the normal data.

Claim 10 (Currently Amended): The inspection apparatus of a terminal fittings according to claim 9, wherein the image is a digital information, in which an optical power is indicated with a plurality of grades thereof,

the ~~second~~ extraction means compares the image of the terminal fittings, to which the electric wire is pressure-welded, picked up by the image pickup means and the plurality of the images in the ~~second~~ image consulting data by a method of normalization correlation so that the image having the highest correlation value obtained by the method of normalization correlation out of the images is set up to be said most analogous image, and

the ~~second~~ judgment means judges the quality of the pressure-welding state of the electric wire to the terminal fittings mounted at the mount to be inspected to be good when the correlation value is equal to or higher than a predetermined threshold and the item symbol corresponding to the image of the terminal fittings picked up by the image pickup means corresponds, according to the normal data, to the proper item symbol for the mount to be inspected, and

the judgment means judges the quality of the pressure-welding state to be no good when the correlation value is lower than the predetermined threshold or when the item symbol corresponding to the image of the terminal fittings picked up by the image pickup means does not, according to the normal data, correspond to the proper item symbol for the mount to be inspected.

Claim 11 (Previously Presented): An inspection apparatus of a terminal fittings for inspecting mounting state of the terminal fittings on an insulator and pressure-welding state of an electric wire, said terminal fittings being mounted at a mount to be inspected on the insulator and the electric wire being pressure-welded to the terminal fittings, the inspection apparatus comprising:

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image pickup means for picking up an image of the terminal fittings mounted at the mount to be inspected on the insulator;

extraction means for (1) storing image consulting data including a plurality of item symbols wherein each of the item symbols corresponds to at least one of a plurality of images of non-defective terminal fittings mounted on the insulator, and storing normal data including a plurality of mounts to be inspected wherein each of the mounts to be inspected corresponds to at least one proper one of the item symbols, and for (2) comparing the image of the terminal fittings picked up by the image pickup means and the plurality of the images of non-defective terminal fittings in the image consulting data, and for (3) extracting an image most analogous to the image of the terminal fittings picked up by the image pickup means from the images in the image consulting data;

judgment means for judging the quality of the mounting state of the terminal fittings on the insulator in dependence upon the most analogous image, the image of the terminal fittings picked up by the image pickup means, the image consulting data, and the normal data;

second extraction means for (1) storing second image consulting data containing a plurality of images of a non-defective terminal fittings, to which the electric wire is pressure-welded, mounted on the insulator, and for (2) comparing the image of the terminal fittings, to which the electric wire is pressure-welded, picked up by the image pickup means and a plurality of images of a non-defective terminal fittings, to which the electric wire is pressure-welded, in the second image consulting data, and for (3) extracting an image most analogous to the image of the terminal fittings, to which the electric wire is pressure-welded, picked up by the image pickup means from the images in the second image consulting data; and

second judgment means for judging the quality of the pressure-welding state of the electric wire to the terminal fittings, to which the electric wire is pressure-welded, mounted on the insulator by comparing the most analogous image and the image of the terminal fittings, to which the electric wire is pressure-welded, mounted on the insulator picked up by the image pickup means.

Claim 12 (Previously Presented): The inspection apparatus of a terminal fittings according to claim 11, wherein the image is a digital information, in which an optical power is indicated with a plurality of grades thereof,

the extraction means compares the image of the terminal fittings picked up by the image pickup means and a plurality of the image in the image consulting data by a method of normalization correlation so that the image having the highest correlation value obtained by the method of normalization correlation out of the images is set up to be said most analogous image,

the judgment means judges the quality of the mounting state of the terminal fittings on the insulator to be good when the correlation value is equal to or higher than a predetermined threshold and the item symbol corresponding to the image of the terminal fittings picked up by the image pickup means corresponds, according to the normal data, to the proper item symbol for the mount to be inspected, and

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the judgment means judges the quality of the mounting state to be no good when the correlation value is lower than the predetermined threshold or when the item symbol corresponding to the image of the terminal fittings picked up by the image pickup means does not, according to the normal data, correspond to the proper item symbol for the mount to be inspected,

the second extraction means compares the image of the terminal fittings, to which the electric wire is pressure-welded, picked up by the image pickup means and a plurality of the images in the second image consulting data by a method of normalization correlation so that the image having the highest correlation value obtained by the method of normalization correlation out of the images is set up to be said most analogous image, and

the second judgment means judges the quality of the pressure-welding state of the electric wire to the terminal fittings to be good when the correlation value is equal to or higher than a predetermined threshold while judges the quality of the pressure-welding state to be no good when the correlation value is lower than the predetermined threshold.

Claim 13 (Original): The inspection apparatus of a terminal fittings according to claim 7, 8, 11 or 12, wherein the terminal fittings has a pressure-welding part to which the electric wire is pressure-welded and a caulking piece for caulking the electric wire,

the image pickup means picks up at least one image out of an image of the pressure-welding part and that of the caulking piece,

the image consulting data includes at least one plurality of images out of images of the pressure-welding part and those of the caulking piece, and

the extraction means compares at least one image out of an image of the pressure-welding part and that of the caulking piece, which are picked up by the image pickup means, with at least one plurality of images out of images of the pressure-welding part and those of the caulking piece, which are included in the image consulting data.

Claim 14 (Currently Amended): The inspection apparatus of a terminal fittings according to claim 9, 10, 11 or 12, wherein the terminal fittings has a pressure-welding part to which the electric wire is pressure-welded and a caulking piece for caulking the electric wire,

the image pickup means picks up at least one image out of an image of the pressure-welding part to which the electric wire was pressure-welded and that of the caulking piece which caulked the electric wire,

the second image consulting data includes at least one plurality of images out of images of the pressure-welding part to which the electric wire was pressure-welded and those of the caulking piece which caulked the electric wire, and

the extraction means compares at least one image out of an image of the pressure-welding part to which the electric wire was pressure-welded and that of the caulking piece which caulked the electric wire, which are picked up by the image pickup means, with at least one plurality of images out of images of the pressure-welding part

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to which the electric wire was pressure-welded and those of the caulking piece which caulked the electric wire, which are included in the second image consulting data.

Claim 15 (New): The inspection apparatus of a terminal fittings according to claim 9 or 10, wherein the terminal fittings has a pressure-welding part to which the electric wire is pressure-welded and a caulking piece for caulking the electric wire,

the image pickup means picks up at least one image out of an image of the pressure-welding part to which the electric wire was pressure-welded and that of the caulking piece which caulked the electric wire,

the image consulting data includes at least one plurality of images out of images of the pressure-welding part to which the electric wire was pressure-welded and those of the caulking piece which caulked the electric wire, and

the extraction means compares at least one image out of an image of the pressure-welding part to which the electric wire was pressure-welded and that of the caulking piece which caulked the electric wire, which are picked up by the image pickup means, with at least one plurality of images out of images of the pressure-welding part to which the electric wire was pressure-welded and those of the caulking piece which caulked the electric wire, which are included in the image consulting data.

### ***Allowable Subject Matter***

2. Claims 3-15 (renumbered as 1-13) are allowed.

3. The following is an examiner's statement of reasons for allowance:

Per the applicants persuasive arguments filled on 12/9/2004 (see remarks pages 18-22) regarding claims 3-15, all the rejection of claims are withdrawn and therefore, the claims are allowed.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

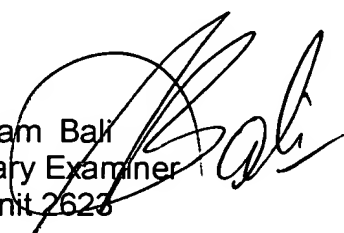


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vikkram Bali whose telephone number is 571.272.7415. The examiner can normally be reached on 7:00 AM - 3:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amelia Au can be reached on 571.272.7414. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Vikkram Bali  
Primary Examiner  
Art Unit 2623



vb  
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